

Claims

1. An optoelectronic module (200) comprising a module casing (128) having a maximum specified operating temperature, an active optoelectronic component (102) located within the module casing (128) and a heating device (202) located adjacent the active optoelectronic component (102) within the module casing (128) for heating the active optoelectronic component (102) to an operating temperature at or above the maximum specified operating temperature of the module casing, wherein the active optoelectronic component (102) has operating characteristics at its operating temperature that are sufficient for its required function.
2. An optoelectronic module according to claim 1, wherein the active optoelectronic component (102) comprises a laser.
3. An optoelectronic module according to claim 1, wherein the active optoelectronic component (102) comprises a semiconductor optoelectronic amplifier.
4. An optoelectronic module according to any one of claims 1, 2 or 3, wherein the active optoelectronic component (102) has a ratio of the slope efficiency of the component (the incremental increase in output power for an incremental increase in bias current) at 25°C to the slope efficiency at 95°C is greater than 0.8.
5. An optoelectronic module according to claim 4, wherein the active optoelectronic component (102) comprises an AlGaInAs laser.
6. An optoelectronic module according to claim 4, wherein the active optoelectronic component (102) comprises a GaNAs laser.

7. An optoelectronic module according to claim 4, wherein the active optoelectronic component (102) comprises a quantum dot laser.

5 8. An optoelectronic module according to claim 4, wherein the active optoelectronic component (102) comprises a semiconductor optical amplifier comprising AlGaInAs or GaNAs or quantum dots.

9. An optoelectronic module according to any preceding claim, further comprising a heat insulating layer (204) between the active optoelectronic component (102) and the module casing (128).
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10. An optoelectronic module according to any preceding claim, further comprising a thermal switch (300) between the active optoelectronic component (102) and the module casing (128).
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11. A thermal switch (300) for switchably providing either a relatively low or relatively high thermal impedance between a heat source side (202) of the thermal switch and a heat sink side (302) of the thermal switch, the thermal switch (300) comprising a channel (308) having a first location (312) between the heat source and heat sink sides of the thermal switch and a second location (314), a thermally conductive fluid (310) within the channel, the fluid (310) having a surface tension such that it remains substantially as a single droplet and does not flow spontaneously along the channel (308), and means for displacing the thermally conductive fluid between the first (312) and second (314) locations in the channel.
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12. A thermal switch according to claim 11, wherein the first (312) and second (314) locations comprise first (412) and second (414) cavities, respectively, in the channel (308) for receiving the droplet of thermally conductive fluid (310), which substantially fills the cavity in which it is located.
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13. A thermal switch according to claim 12, wherein the channel (308) extends between a first chamber (402) and a second chamber (404), the first and second cavities (412, 414) being located between the first and second chambers (402, 404).

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14. A thermal switch according to claim 13, wherein the channel (308), the cavities (412, 414) and the chambers (402, 404) are filled, except for the droplet of thermally conductive fluid (310), with a non-thermally conductive fluid.

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15. A thermal switch according to claim 14, wherein at least the first chamber (402) includes a heating means (408) for heating the non-thermally conductive fluid so as to thereby increase its volume and exert pressure on the droplet of thermally conductive fluid (310) located at the first location (312) so as to displace it towards the second location (314).

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16. A thermal switch according to claim 15, wherein the second chamber (404) includes a heating means (410) for heating the non-thermally conductive fluid so as to thereby increase its volume and exert pressure on the droplet of thermally conductive fluid (310) located at the second location (314) so as to displace it towards the first location (312).

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17. A thermal switch according to any one of claims 11 to 16, further comprising an electrode pair (416, 418) in each of the cavities (412, 414), each electrode pair (416, 418) being positioned within the respective cavity (412, 414) that an electrically conducting circuit is formed between the electrode pair (416, 418) by the droplet of thermally conductive fluid (310), which is also electrically conducting, thereby providing an indication of which cavity (412, 414) the droplet of thermally conductive fluid is located at.

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18. A thermal switch according to either claim 11 or claim 12, further comprising a pair of electrodes (502) extending in a plane through the length

of the channel (308) such that the droplet of thermally conductive fluid (310), which is also electrically conducting, provides an electrical path between the electrodes (502), and a pair of magnetic poles (510, 512) arranged to provide a magnetic field (514) in a direction orthogonal to the plane containing the pair of electrodes (502) and the longitudinal axis of the channel (308), whereby provision of electric current through the pair of electrodes (502) and through the droplet of thermally conductive fluid (310), causes a force to be exerted on the droplet of thermally conductive fluid (310) to move it along the channel (308) between the first and second locations (312, 314).

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19. A thermal switch according to claim 18, further comprising a current source (504) coupled between the electrodes (502) at one end of the channel (308) and a voltage meter (506) electrically coupled across the current source (504), whereby the voltage meter (506) measures a different voltage depending on the location of the droplet of thermally conductive fluid (310) when an electric current is passed through the pair of electrodes (502).

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20. A method of operating an active optoelectronic component located within an optoelectronic module having a casing by heating the active optoelectronic component to an operating temperature at or above the maximum specified operating temperature of the module casing, the active optoelectronic component having operating characteristics at its operating temperature that are sufficient for its required function.

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